

What is claimed is:

1 1. A method for use in a database system, comprising:
2 storing a materialized join view based on at least two base
3 relations;
4 storing at least one auxiliary relation containing one or more
5 attributes of one of the base relations, the auxiliary relation partitioned according
6 to a join attribute; and
7 updating the at least one auxiliary relation in response to
8 modification of the one base relation.

1 2. The method of claim 1, further comprising storing the one base
2 relation that is not partitioned according to the join attribute.

1 3. The method of claim 2, further comprising:
2 receiving a tuple into the database system;
3 storing the tuple in one of the at least two base relations;
4 storing the tuple in the auxiliary relation; and
5 using the auxiliary relation to determine whether to update the
6 materialized join view.

1 4. A method comprising:
2 receiving a tuple into a relation at a first node, wherein the tuple
3 comprises a join attribute and the relation is not partitioned according to the join
4 attribute;
5 storing the tuple in an auxiliary relation at a second node, wherein
6 the auxiliary relation is partitioned according to the join attribute;
7 identifying second tuples of a second relation;
8 joining the tuple with the second tuples to produce join results; and
9 storing the join results in a join view.

1 5. The method of claim 4, wherein joining the tuple with the second
2 tuples to produce join results comprises:

3 identifying second join attributes in the second tuples; and
4 comparing the second join attributes with the join attribute of the
5 relation.

1 6. The method of claim 5, wherein identifying second tuples of a
2 second relation comprises identifying second tuples of the second relation at the
3 second node.

1 7. The method of claim 4, wherein storing the tuple in an auxiliary
2 relation at a second node comprises:

3 determining that a join view definition excludes an attribute of the
4 tuple; and
5 not storing the excluded attribute in the auxiliary relation.

1 8. The method of claim 4, wherein storing the tuple in an auxiliary
2 relation at a second node comprises:

3 determining that a join view definition includes a condition on one
4 of the attributes of the tuple; and
5 identifying the attribute in the tuple;
6 determining that the condition is not met; and
7 not storing the tuple in the auxiliary relation.

1 9. The method of claim 4, wherein storing the tuple in an auxiliary
2 relation at a second node comprises:

3 determining that a join view definition includes a condition that
4 cannot be met; and
5 not storing the tuple in the auxiliary relation.

PCT/2020/090056

1 10. The method of claim 5, wherein storing the tuple in an auxiliary
2 relation at a second node comprises:

3 determining that the join attribute is a key of the relation;
4 determining that the second join attribute is a foreign key of a
5 second relation, wherein the foreign key references to the join attribute; and
6 not maintaining a second auxiliary relation.

1 11. The method of claim 4, wherein storing the join results in a join
2 view comprises:

3 determining that a join view definition includes a condition on one
4 of the attributes of the tuple; and
5 identifying the attribute in the tuple;
6 determining that the condition is not met; and
7 not storing the join results in the join view.

1 12. The method of claim 4, wherein storing the join results in a join
2 view comprises:

3 determining that a join view definition includes a condition that
4 cannot be met; and
5 not storing the join results in the join view.

1 13. A database system comprising:

2 a storage module to store relations and at least one auxiliary
3 relation corresponding to one of the relations, the at least one auxiliary relation
4 containing one or more attributes of the one relation, the at least one auxiliary
5 relation partitioned differently than the one relation, the storage module further
6 to store a join view based on a join of the relations; and
7 a controller adapted to update the join view using the at least one
8 auxiliary relation.

1 14. The database system of claim 13, wherein the controller is further
2 adapted to receive a tuple and store the tuple in one of the relations and in one
3 of the at least one auxiliary relations.

1 15. The database system of claim 14, wherein the controller is further
2 adapted to not update the join view after receiving some tuples.

1 16. An article comprising a medium storing instructions for enabling a
2 processor-based system to:

3 receive a tuple into a relation at a first node, wherein the tuple
4 comprises a join attribute and the relation is not partitioned according to the join
5 attribute;

6 store the tuple in an auxiliary relation at a second node, wherein
7 the auxiliary relation is partitioned according to the join attribute;

8 identify second tuples of a second relation;

9 join the tuple with the second tuples to produce join results; and
10 store the join results in a join view.

1 17. The article of claim 16, further storing instructions for enabling the
2 processor-based system to:

3 identify second join attributes in the second tuples; and

4 compare the second join attributes with the join attribute of the
5 relation.

1 18. The article of claim 16, further storing instructions for enabling the
2 processor-based system to:

3 determine that a join view definition excludes an attribute of the
4 tuple; and

5 not store the excluded attribute in the auxiliary relation.

1 19. The article of claim 16, further storing instructions for enabling the
2 processor-based system to:

3 determine that a join view definition includes a condition on one of
4 the attributes of the tuple; and

5 identify the attribute in the tuple;

6 determine that the condition is not met; and

7 not store the tuple in the auxiliary relation.

1 20. The article of claim 16, further storing instructions for enabling the
2 processor-based system to:

3 determine that a join view definition includes a condition that
4 cannot be met; and

5 not store the tuple in the auxiliary relation.

1 21. The article of claim 17, further storing instructions for enabling the
2 processor-based system to:

3 determine that the join attribute is a key of the relation;

4 determine that the second join attribute is a foreign key of a
5 second relation, wherein the foreign key references to the join attribute; and

6 not maintain a second auxiliary relation.

1 22. The article of claim 16, further storing instructions for enabling the
2 processor-based system to:

3 determine that a join view definition includes a condition on one of
4 the attributes of the tuple; and

5 identify the attribute in the tuple;

6 determine that the condition is not met; and

7 not store the join results in the join view.

1 23. The article of claim 16, further storing instructions for enabling the
2 processor-based system to:

3 determine that a join view definition includes a condition that
4 cannot be met; and
5 not store the join results in the join view.